

REMARKS

I. THE CLAIMS ARE PATENTABLE OVER THE CITED PRIOR ART

A. Paragraph 3 Rejection of Claims 1, 8-10, 13, 27, 34, 35, 41, 48, 51, 52 and 55

In paragraph 3 of the Office Action, claims 1, 8-10, 13, 27, 34, 35, 41, 48, 51, 52 were rejected under 35 U.S.C. 102(b) as being assertedly anticipated by Huang et al., U.S. Pub. No. 2002/0054680 ("Huang Application"). The Applicants respectfully traverse this rejection.

1. Independent Claims 1, 13, 27 and 41

Claim 1 recites an authenticatable article comprising a printable surface and a latent image formed on a first portion of the printable surface. The latent image is formed in a transmittent printing medium and is an encoded version of an authentication image. the latent image is configured for optical decoding by an optical decoder so that the authentication image can be viewed through the optical decoder when the optical decoder is placed over the latent image.

Claim 13 recites a system for authenticating an article. The system comprises a latent image formed in a transmittent printing medium on a printable surface of the article. The latent image is configured as an encoded version of an authentication image using an optically decodable coding scheme. The system further comprises an optical decoder comprising a lens adapted for placement over at least a portion of the latent image. The lens has optical decoding properties corresponding to the optically decodable coding scheme so that the latent image is decoded when the lens is placed over it, thereby allowing the authentication image to be viewed through the lens.

Claim 27 is similar to claim 13 except that the lens is replaced by optical decoding means for decoding the latent image so that the authentication image can be viewed.

Claim 41 recites a method of applying an authentication image to an article. The method comprises obtaining a digitized version of the authentication image, encoding the digitized version of the authentication image to produce an encoded latent image, and printing the encoded latent image on a first portion of the printable surface of the article using a transmittent printing medium.

A common feature of all four of these claims is a latent image formed in or printed using a transmittent printing medium.

2. The Huang Application

The Huang Application is directed to the use of a multiple layer watermark to protect documents from counterfeiting or forgery. Huang Application Abstract. According to the methods disclosed, multiple latent image objects are embedded into layers of repetitive structures to generate a watermark. Huang Application paragraph 10. The watermark is then incorporated into a document as for example, a seal, logo or background. Id. One or two latent image objects are embedded into each watermark layer. Huang Application, paragraph 11. Each watermark layer has different structure and a corresponding decoder to observe the latent image object embedded in it. Id. The latent image embedded in a watermark layer cannot be observed by the unaided human eye unless a decoder corresponding to that watermark layer's structure is overlapped onto the watermark. Id.

Each layer of the Huang Application watermark is a repetitive, structured array of dots. Huang Application, paragraph 25. Latent image objects are embedded into the watermark layer by modulation. Id. This may include, for example, phase modulation. Id. The structure and orientation of the different watermark layers in an optical watermark must be different from each other. Id. Only the decoder corresponding to a particular watermark layer can be used to view the latent image object embedded in that particular watermark layer. Id.

The Huang Application notes that phase modulation changes the distances between a pair of dots at the edge of the latent images in the direction of the phase modulation. Huang Application, paragraph 28. The Huang Application further notes that the human eye can perceive such changes because they tend to make the edge of the latent image become either lighter or darker than the overall grey level of the dot array. Id. The effect can be compensated by a "smoothing" process applied to regions with an abrupt phase shift. Id.

The multiple watermark layers of the Huang Application are superposed to provide a single optical watermark. Huang Application, paragraphs 47-48 and Figure 4. The latent images in a particular layer of the watermark may be decoded using the appropriate decoder. Huang Application, paragraph 57.

The Huang Application states that the disclosed method can be practiced without special ink or paper. Huang Application, paragraph 14. The optical watermark of the Huang Application can be applied using more than one color. Huang Application, paragraph 98.

3. The Huang Application Does Not Disclose the Features of Independent Claims 1, 13, 27 and 41

The Applicants respectfully submit that the Huang Application does not teach, disclose or suggest a latent image formed in a transmittent printing medium or printing a latent image using a transmittent printing medium. As noted in the specification, the term “transmittent print medium” means a print medium that allows passage of light through the print medium without a significant degree of reflection of the incident light in a direction normal to the surface on which the print medium is applied. Application, paragraph 17.

The Huang Application does not disclose or even discuss the use of a transmittent printing medium. Although it uses the term “watermark,” the Huang Application discloses the embedding of latent images in visible printed dot patterns. The latent images are rendered non-visible through the use of modulated shifts in the regular dot pattern. These shifts are generally too small to be discernible to the eye, but do result in visually apparent changes in the overall gray level of the printed dot array. See Huang Application, paragraph 28. The Huang Application does not disclose printing a watermark using a medium that transmits light.

As noted above, claims 1, 13, 27 and 41 each recite, in one form or another, a latent image formed using a transmittent printing medium. Because this feature is nowhere discussed in the Huang Application, the Applicant respectfully requests that the rejection of claims 1, 13, 27 and 41 under 35 U.S.C. 102(b) be withdrawn.

4. Dependent Claims 8-10, 27, 34, 35, 48, 51, 52 and 55

Each of claims 8-10, 27, 34, 35, 48, 51, 52 and 55 is dependent on one of the independent claims (claims 1, 13, 27 and 41) discussed above in section I.A.3. The Applicant respectfully submits that because independent claims 1, 13, 27 and 41 are patentable over the Huang Application, claims 8-10, 27, 34, 35, 48, 51, 52 and 55 must be patentable over the Huang Application as well. The Applicant therefore respectfully requests

that the rejection of claims 8-10, 27, 34, 35, 48, 51, 52 and 55 under 35 U.S.C. 102(b) be withdrawn.

B. Paragraph 8 Rejection of Claims 2-5, 11, 12, 14-17, 28-31, 42-45, 49 and 50

In paragraph 8 of the Office Action, claims 2-5, 11, 12, 14-17, 28-31, 42-45, 49 and 50 were rejected under 35 U.S.C. 103(a) as being assertedly unpatentable over the Huang Application in view of Amon et al., U.S. Pub. No. 2003/0136837 ("Amon Application"). The Applicants respectfully traverse this rejection.

1. The Amon Application

The Amon Application is directed to a method and mobile system for field authentication of items such as security documents. Amon Application, Abstract and paragraph 8. The method and system uses an authenticating device to interrogate markings on an item to be authenticated. Amon Application, paragraph 32. The markings may be printed features or coatings that absorb and/or transform energy provided by the authenticating device. Id. The authenticating device is enabled to detect the response of the marking to interrogation and/or to read the information contained in the marking. Id.

The Amon Application discloses that the item markings can be used for authentication based on their physical characteristics. Amon Application, paragraph 33. This may include a spectrally selective absorption of electromagnetic radiation, or a spectrally selective emission of electromagnetic radiation in response to an energy supply, or may include other measurable electric or magnetic characteristics. Id. The markings can also carry readable information. Id. The markings may comprise a particle or flake material applied randomly or in a flake distribution pattern over a given surface area. Amon Application, paragraph 32. The pattern or distribution of the particle or flake material can be read and authenticated by the authenticating device. Id.

In a particular embodiment, security markings are formed as a random-pattern of optically authenticatable flakes or particles, applied over a printed micro-text. Amon Application, paragraph 87 and Figure 4. The pattern of particles is produced by over-coating the printed document, at least in part, with a clear varnish containing the optically authenticatable particles in an appropriate concentration. Id. The particles may have

particular optical characteristics, such as spectrally selective reflectivity, angle-dependent color appearance, luminescence, polarization, etc. Id.

2. The Combined Teachings of the Huang and Amon Applications Do Not Teach, Disclose or Suggest the Features of Independent Claims 1, 13, 27 and 41

As discussed above, the Huang Application does not teach disclose or suggest a latent image formed in a transmittent printing medium or printing a latent image using a transmittent printing medium. Because each of claims 1, 13, 27 and 41 recite a latent image formed (or the printing of a latent image) in a transmittent printing medium, each is patentable over the teachings of the Huang Application.

The Applicants respectfully submit that the deficiencies of the Huang Application with respect to the independent claims 1, 13, 27 and 41 are not cured by the teachings of the Amon Application. As a general matter, the Amon Application does not teach, disclose or suggest the use of latent images. More particularly, the Amon Application does not teach, disclose or suggest the use of latent images formed in a transmittent print medium. At most, the Amon Application discloses the use of a clear varnish as a carrier medium for optically authenticatable particles. Together, these are used as an “over-coating” applied over the top of security indicia (micro-text). There is no disclosure of the use of clear varnish or any other transmittent medium to form an image, latent or otherwise.

Because the Amon Application does not supply the features of claims 1, 13, 27 and 41 missing from the teachings of the Huang Application, the Applicant submits that claims 1, 13, 27 and 41 are patentable over the combined teachings of the Huang Application and the Amon Application.

3. Dependent Claims 2-5, 11, 12, 14-17, 28-31, 42-45, 49 and 50

Each of claims 2-5, 11, 12, 14-17, 28-31, 42-45, 49 and 50 is dependent on one of the independent claims (claims 1, 13, 27 and 41) which have been shown to be patentable over the combined teachings of the Huang and Amon Applications. The Applicant respectfully submits that because independent claims 1, 13, 27 and 41 are patentable over the cited references, claims 2-5, 11, 12, 14-17, 28-31, 42-45, 49 and 50 must be patentable over the cited references as well. The Applicant therefore respectfully requests that the rejection of claims 2-5, 11, 12, 14-17, 28-31, 42-45, 49 and 50 under 35 U.S.C. 103(a) be withdrawn.

C. Paragraph 11 Rejection of Claims 6, 7, 18, 19, 32, 33, 46, 47, 53 and 54

In paragraph 11 of the Office Action, claims 6, 7, 18, 19, 32, 33, 46, 47, 53 and 54 were rejected under 35 U.S.C. 103(a) as being assertedly unpatentable over the Huang Application in view of Merry et al., U.S. Patent No. 5,178,418 ("Merry Patent"). The Applicants respectfully traverse this rejection.

1. The Merry Patent

The Merry Patent is directed to a security device comprising a substrate with an array of characters applied to it. Merry Patent, col. 1, lines 29-48. The characters are of a sufficiently small size as to appear uniform when ordinarily viewed but individually identifiable when viewed with the aid of appropriate magnification means. Id. Groups of these characters are phase-shifted relative to the others in such a manner as to collectively define a latent image, the image being relatively indiscernible when the device is ordinarily viewed but discernible when viewed with the aid of a finding screen. Id.

The characters (which may make up any word, phrase or symbol) appear to be uniform non-distinct lines or other print elements. Merry Patent, col. 2, lines 43-52. They may be dark characters on a light background as exemplified in Figures 1-3 or light characters on a dark background as exemplified by Figure 6. The use of a dark background and light characters may be preferred. Merry Patent, col. 1, lines 54-55.

The Merry Patent discloses that characters (or groups of characters) are shifted above or below the centerline of the character string. Merry Patent, col. 3, lines 6-22. This phase shifting of the individual pre-selected characters is pre-arranged to, collectively, define a message comprising a word or symbol at a macroscopic level. Id.

The preferred methods of printing the character array are said to be intaglio and offset lithography according to the conventional and well-known procedures in the industry. Merry Patent, col. 3, lines 37-43. Embossing printing methods may also be appropriate where the security device is required for, for example, aluminized foil lottery tickets or where plastic laminates are used to protect identification documents. Id.

2. The Combined Teachings of the Huang Application and the Merry Patent Do Not Teach, Disclose or Suggest the Features of Independent Claims 1, 13, 27 and 41

As discussed above, the Huang Application does not teach disclose or suggest a latent image formed in a transmittent printing medium or printing a latent image using a transmittent printing medium. Because each of claims 1, 13, 27 and 41 recite a latent image formed (or the printing of a latent image) in a transmittent printing medium, each is patentable over the teachings of the Huang Application.

The Applicants respectfully submit that the deficiencies of the Huang Application with respect to the independent claims 1, 13, 27 and 41 are not cured by the teachings of the Merry Patent. At most, the Merry Patent discloses phase shifting visible microprinted characters to embed latent images. There is no disclosure or suggestion of using a transmittent print medium to form the microprinted characters of the Merry Patent.

Because the Merry Patent does not supply the features of claims 1, 13, 27 and 41 missing from the teachings of the Huang Application, the Applicant submits that claims 1, 13, 27 and 41 are patentable over the combined teachings of the Huang Application and the Merry Patent.

3. Dependent Claims 6, 7, 18, 19, 32, 33, 46, 47, 53 and 54

Each of claims 6, 7, 18, 19, 32, 33, 46, 47, 53 and 54 is dependent on one of the independent claims (claims 1, 13, 27 and 41) which have been shown to be patentable over the combined teachings of the Huang Application and the Merry Patent. The Applicant respectfully submits that because independent claims 1, 13, 27 and 41 are patentable over the cited references, claims 6, 7, 18, 19, 32, 33, 46, 47, 53 and 54 must be patentable over the cited references as well. The Applicant therefore respectfully requests that the rejection of claims 6, 7, 18, 19, 32, 33, 46, 47, 53 and 54 under 35 U.S.C. 103(a) be withdrawn.

II. CONCLUSION

For at least the reasons set forth above, the Applicants respectfully submit that claims 1-55 are in condition for allowance. The Applicants therefore request that the present application be allowed and passed to issue.

Should the Examiner believe anything further is desirable in order to place the

application in even better condition for allowance, the Examiner is invited to contact the Applicant's undersigned representative.

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